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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,838	01/05/2004	Shuichi Takeuchi	H6808.0032/P032	2502
24998	7590	10/05/2004	EXAMINER	
DICKSTEIN SHAPIRO MORIN & OSHINSKY LLP			FERNANDEZ, KALIMAH	
2101 L STREET NW			ART UNIT	
WASHINGTON, DC 20037-1526			PAPER NUMBER	
			2881	

DATE MAILED: 10/05/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/750,838

Applicant(s) 

TAKEUCHI ET AL.

Examiner

Kalimah Fernandez

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>6-9-04</u> . | 6) <input type="checkbox"/> Other: ____.  |

## DETAILED ACTION

### ***Claim Rejections - 35 USC § 103***

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-16 are rejected under 35 U.S.C. 103(a) as being unpatentable over EP 0566963 issued to Sato.
3. Sato teaches irradiating a sample at different incident angles (see col. 1, lines 25-36; col.10, lines 9-12; see fig. 6a-6b).
4. Sato teaches repetitively scanning a sample at different focus depths and capturing a plurality of images (see for example col.5, lines 13-20).
5. Sato teaches extracting the most in-focus domain (col.6, lines 20-53).
6. Sato teaches generating an all in-focus over the whole image, i.e. generating a three-dimensional image over whole image comprising of the most in-focus domains of the numerous images (col.6, lines 39-58).
7. Sato does not explicitly teach the steps:
8. "irradiating an electron beam to a sample at a first incident angle, and detecting a secondary signal emitted from the sample to capture a scanning electron microscope image of the sample; repeating

the step while varying a focus in a step-wise manner, and capturing plural scanning electron microscope images at first incident angle; irradiating the electron beam to the sample at second incident angle different from the first incident angle, and detecting secondary signal emitted from the sample to capture a scanning electron microscope image of the sample; repeating the step varying a focus step-wise manner, and capturing plural scanning electron microscope images second incident angle; repeating the step while varying a focus in a step-wise manner, and capturing plural scanning electron microscope images at the second incident angle; extracting most in-focus image domains from each of the plural scanning electron microscope images captured at the first incident angle, and creating a first all in-focus image being in focus over the whole image; extracting most in-focus image domains from each of the plural scanning electron microscope images captured at the second incident angle, and creating a second all in-focus image being in focus over the whole image; and observing a stereoscopic view from the first all in-focus image and the second all in-focus image."

9. However, it would have been obvious to an ordinary artisan at the time of the invention to perform the claimed method based on Sato's disclosure because Sato's method and the claimed method are close enough that one skilled in art would have expected them to have the same result. The essential difference between the two is the claimed method explicitly recites scanning at two different incidence angles whereas Sato simply discloses tilting the sample but does not specify how many times (see col.10, lines 9-12; fig. 6b). An ordinary artisan would have obvious motivation to use at least two different incidence angles because two

different incidence angles would minimal account for any holes/recesses in the sample and increase imaging accuracy.

10. As per claims 2 and 10, Sato teaches calculating a distance between two pixels; calculating height information by each pixel based on the distance between corresponding two pixels and creating a height map on the basis of the height information by each pixel (col.7, lines 35-53).

11. Sato et al does not teach the two pixels being from the first all in-focus image and the second all in-focus image. However, the breath of Sato's disclosure teach the pixels (or points) originating from the first all in-focus image and a second all in-focus image because Sato teaches the pixel taken from the superposition of the all in-focus images (see fig. 5). All other limitations of claim 1 have been treated above.

12. As per claims 3, 12, and 15, Sato teaches a step of creating a three-dimensional bird's-eye view from the height map (see col.5, lines 1-29; col. 7, lines 1-17). In addition, claims 12 and 15 are deem obvious modifications of Sato because the selection of number of images falls within general skill in the art. An ordinary artisan would be motivated to modify Sato as claimed because one can obviously improve accuracy and precision by processing more images.

13. As per claim 4, Sato teaches the claimed invention because it simply enumerates the number of all in-focus images are created to construct the three-dimensional image. Here, the claimed method requires four all in-focus images. This difference would have been obvious to an ordinary artisan at the time of the invention because the selection of the number of all in-focus images falls within general skill in the art and is deem an obvious modification of Sato. An ordinary artisan would be motivated to modify Sato as claimed because one can obviously improve accuracy and precision by processing more images.

14. As per claims 5 and 16, Sato teaches the use of color to differentiate each all in-focus image (col.9, lines 53-56; col.10, lines 23-29).

15. As per claim 6, Sato obviously teaches the claimed method as described in the rejection of claims 2 and 4.

16. As per claims 9 and 11, Sato teach the incident angle are set by the deflection action as depicted in figs. 6a-b.

17. As per claims 13-14, Sato does not teach multiple detectors as claimed. Rather, Sato teaches the use of a single detector, which detects secondary and reflected electrons (see col. 4, lines 16-22). However, it would have been obvious to one having ordinary skill in the art at time the

invention was made to employ multiple detectors, since it has been held that mere duplication of the essential working parts of a device involves only routine skill in art. *St. Regis Paper Co. v. Bemis Co.*, 193 USPQ 818. An ordinary artisan would be motivated to employ multiple detectors to increase productivity.

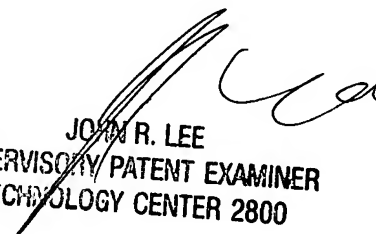
### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. US Pat No 6,538,249 issued to Takane et al and US Pat No 4,618,766 issued to van der Mast et al are considered relevant to the claimed invention. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kalimah Fernandez whose telephone number is 571-272-2470. The examiner can normally be reached on Mon-Tues 6:30-3:30; Wed-Thurs 8-5 and Fri.9am-6 pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John R Lee can be reached on 571-272-2477. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KF



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